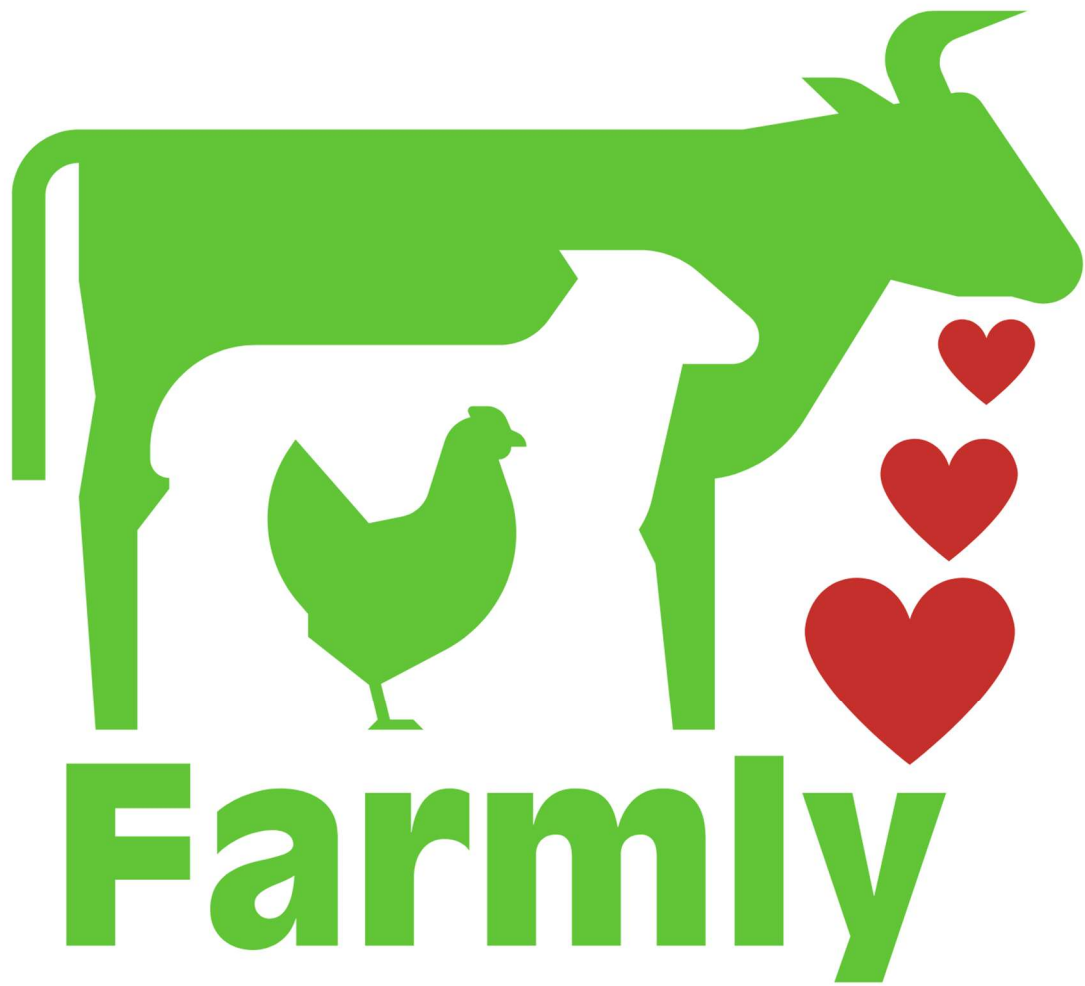




Farmly – An AI-Assisted App for Farmers to Sell Their Goods

by Jakob Gutersohn, Nils Buchli and Valéry Piot

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The Problem

In Switzerland, “Hofläden”, small farm shops located directly on agricultural properties, offer a unique and valuable alternative to conventional retail. Customers can purchase fresh, local products directly from the farmers, without intermediaries. This model supports regional culture, strengthens local economies, and ensures that farmers receive fair compensation for their goods.

Despite these advantages, Hofläden face a major challenge: Transportation

Most farms are located outside urban centres, making it difficult for customers to access them regularly. As a result, many farmers deliver goods themselves by car a process that is time-consuming, inefficient, and often unsustainable. Traditional parcel services are typically too expensive and poorly optimized for small-scale, perishable farm deliveries. Meanwhile, customers are reluctant to drive to multiple farms just to pick up their orders.

This logistical bottleneck prevents Hofläden from scaling and becoming a mainstream alternative to supermarkets.

Therefore, we asked ourselves:

Farmers already drive between nearby farms and customers as part of their daily routines. What if these routes could be coordinated intelligently?

And this is exactly where our solution sets in.

Our Solution



To address the logistical challenges faced by Hofläden, we developed **Farmly** an AI-assisted app that enables farmers to collaborate on deliveries and optimize their routes.

Instead of each farm managing transportation individually, Farmly connects nearby farmers so they can coordinate deliveries together, saving time, fuel, and effort.

- **User Onboarding**

Farmers register in the app and are welcomed by a **chat-based interface**. This conversational flow is powered by an AI agent that guides users step-by-step through the process of listing goods for delivery.

- **Smart Listing & Pricing**

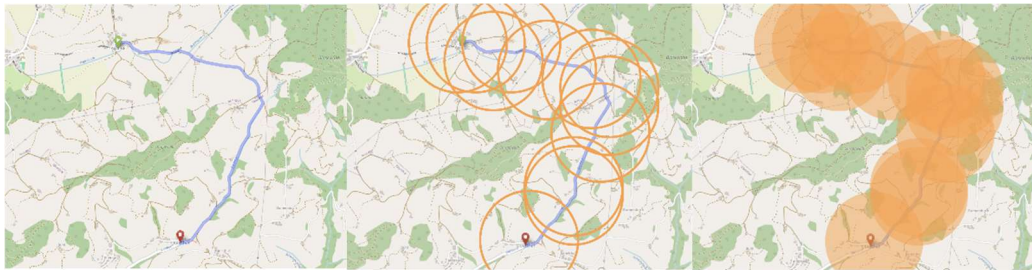
The AI asks simple questions to help farmers add products to a shared delivery pool. Each item includes a suggested delivery fee — the amount the delivering farmer will receive.

- **Shared Delivery Pool**

All listed goods are stored in a **common database**, visible to nearby farmers. When a farmer plans a delivery, they can view other packages along their route and choose to deliver them as well.

- **Intelligent Routing**

Our **smart routing system** recommends additional packages that are located within a 5 km radius of the farmer's existing delivery path. This ensures minimal Detours and maximum Efficiency.



- **Accessibility First**

We designed the app to be **intuitive and simple**, so even users without technical backgrounds can navigate it easily. The chat interface lowers the barrier to entry and makes logistics feel natural

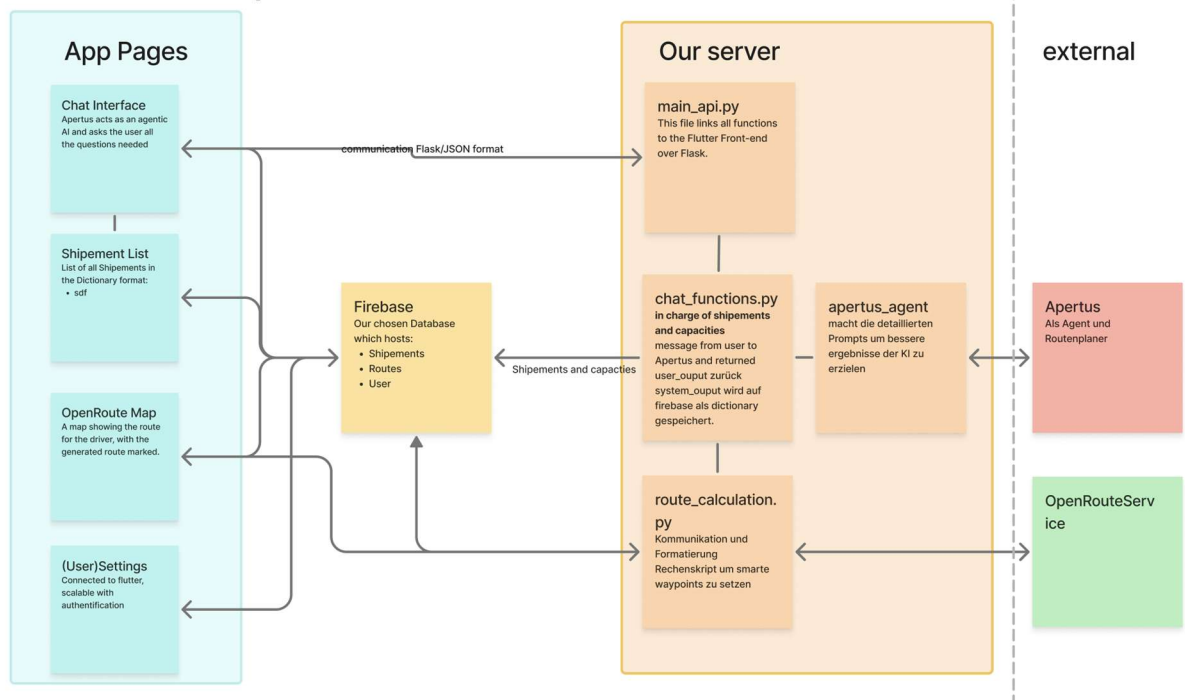
Our Technical Solution

To bring Farmly to life, we built a modular and scalable system that combines a Flutter-based app, a custom server infrastructure, and several external services. At its core is Apertus, our intelligent AI agent that guides users through the app and enables smart coordination between farmers.

Our solution consists of three main components:

Flutter App	Cross-platform mobile app with intuitive UI and chat-based interaction
Custom Server	Hosted on a dedicated machine (Medion PC), handles API logic and routing
External Services	Firebase (database), OpenRouteService (routing), Apertus (AI agent)

File Structure/Communications



We visualized this architecture in a system diagram, showing the communication flow between the app, server, and external APIs. On the left side is the user-facing app, on the right, the backend and connected services.

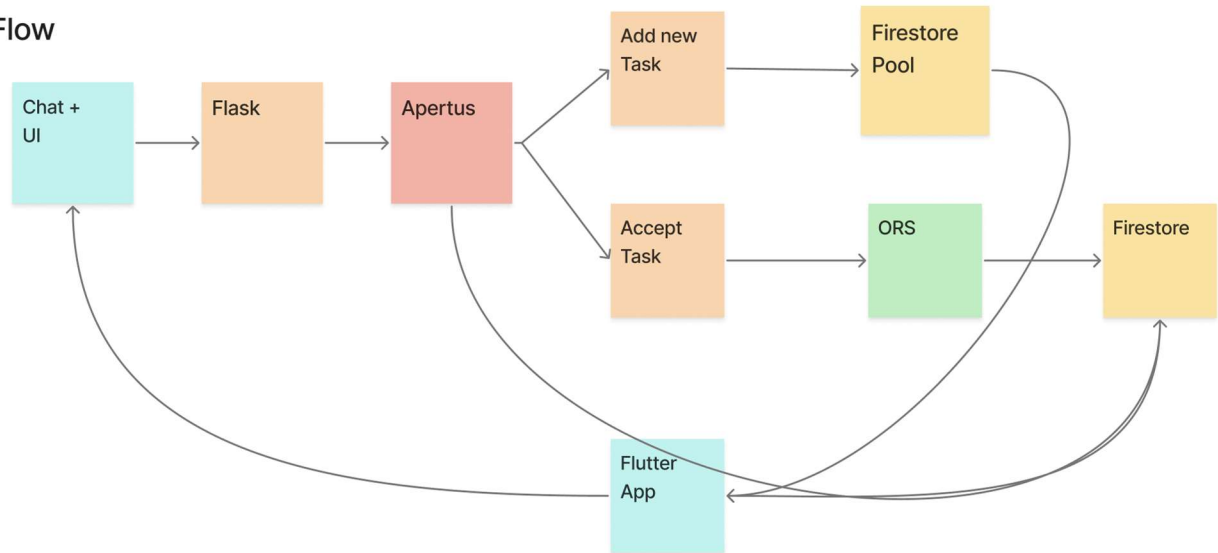
Apertus – Our AI Agent

Apertus is the heart of the user experience. It powers a **chat interface** that allows farmers to:

- Add goods for delivery
- Declare available delivery capacity
- Receive smart suggestions for nearby packages to pick up

Using natural language understanding, Apertus interprets user intent and triggers backend logic to update the shared database and calculate delivery matches. This makes the app accessible even for users without technical backgrounds.

Flow



App Structure

Built with **Flutter**, our app includes:

- **Chat Interface** (main screen): guided input via Apertus
- **Goods Overview** shows listed items and delivery status
- **Delivery Suggestions**: recommends packages within 5 km of current route
- **Profile & Settings**: manage user data and preferences

The UI is designed to be clean and minimal, with Material Design principles to ensure usability and accessibility.

Backend & Server Setup

We deployed our backend on an **old school pc we bought cheap**, simulating a real-world server environment. This allowed us to:

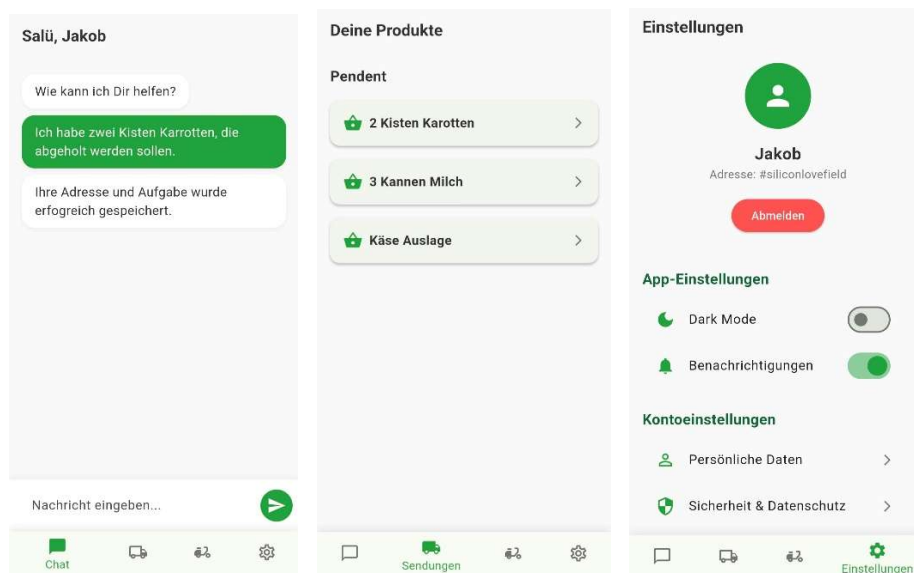
- Host our **Python-based API**
- Manage routing logic and AI triggers
- Connect securely to Firebase and OpenRouteService

The server handles requests from the app, processes user input, and returns delivery suggestions based on route optimization and proximity.

Overview of the technologies used:

Layer	Tools & Frameworks
Frontend	Flutter, Dart
Backend	Python, Flask
Database	Firebase Firestore
Routing	OpenRouteService API
AI Agent	Apertus (custom logic + NLP model)
Hosting	Local server (old PC)

App Functionality



These Pictures show our App interface.

(from left to right)

1. The intuitive Chat interface, which guides the user through the process of adding orders or register capacity. The Chatbot detects by itself if the user wants to add goods or capacity and can store the registered data in our Database

2. Here we can see the goods we have currently registered, that are waiting to be delivered. We can also edit them right on this page, in case there was a problem, or something was understood wrong by the AI

3. The Settings page which also shows the user profile

Why our solution matters

Farmly revolutionizes rural logistics.

Instead of isolated deliveries and inefficient routes, we've built a smart, AI-powered system that transforms farmers into a connected delivery network. Through our intuitive app and intelligent agent, Apertus, farmers can easily list goods, coordinate routes, and pick up nearby packages — all via a simple chat interface. This reimagines how “Hofläden” operate: reducing costs, saving time, and making fresh, local products more accessible than ever.

Farmly isn't just a tool — it's a movement toward smarter, greener, community-driven agriculture. And we didn't stop at a prototype. Our solution is built on a scalable, real-world foundation that can support farmers beyond the hackathon, helping them collaborate, deliver, and thrive every day.

And all of this while remaining simple, accessible and intuitive!

Farmly - From Field to Door, the Smarter Way!

Team

We are Jakob, Nils, and Valéry — second-year students at Gymnasium Kirchenfeld in Bern. Outside of class, we enjoy taking part in competitions that challenge us to think creatively and push our technical skills. This hackathon was a new experience for all of us, and it gave us the opportunity to dive deeper into the world of AI, learn new tools, and collaborate on a real-world problem. It wasn't just about building something, it was about growing as a team, gaining practical knowledge, and having fun along the way.

We would like to thank the organizing team and all the helpers for putting together this amazing event — we had a fantastic time!

Links and Sources

<https://m3.material.io/>

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